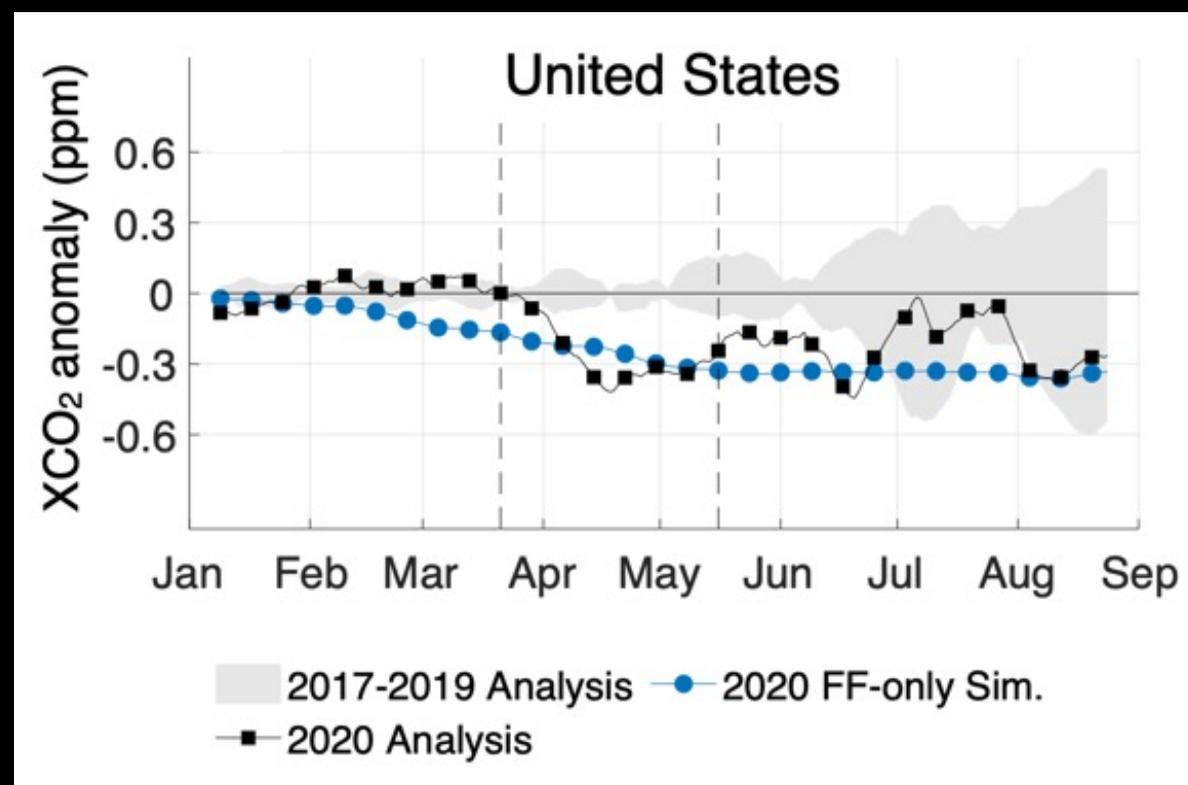


Regional Impacts of COVID-19 on Carbon Dioxide Detected Worldwide from Space



- Monitoring carbon dioxide emissions are critically important for combating climate change.
- Satellites observed sharp reductions in human-caused emissions, such as nitrogen dioxide (NO₂), in many urban areas after the COVID-19 pandemic disrupted normal activities.
- These data are potentially valuable in helping scientists and decision makers monitor recent changes in emissions but are subject to larger uncertainty than more traditional emissions estimates.
- Though emission decreases during COVID-19 are not a perfect analog to emission decreases that would be needed to limit impacts of climate change, this period provided an important test of the capability of current generation carbon monitoring systems.



Observed CO₂ change over the USA in 2020 (black), compared to expected interannual variability (gray) and a simulation of impacts of COVID-induced emissions reductions (blue)